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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Brett Jenkins

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12/13/2005

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EXAMINER

LU, JIA

ART UNIT

PAPER NUMBER

2634

DATE MAILED: 12/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/900,143

Applicant(s)

JENKINS ET AL.

Examiner

Jia W. Lu

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Objections*

1. Claims 7, 9, 23 and 25 are objected to because of the following informalities:  
Acronyms "VSB" and "COFDM" should be properly spelled out. Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
2. Claims 1, 3, 17, 19, 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 6,874,161 in view of US patent 5,548,586.
    - a. Regarding claims 1, 17 and 34, patent '161 discloses a communication method for use in transmitting terrestrial broadcasts comprising

partitioning the broadcast channel into a plurality of channels (column 1, lines 53-55), modulating each partitioned portion (column 1, lines 55-57), and transmitting the modulated portions (column 1, lines 58-60). While '161 does not teach the plurality of partitions to be a common and a unique portion, such use of partitioning is well known in the art (for example, see patent '586, column 1, lines 19-31). It would have been obvious to one ordinarily skilled in the art to partition a channel into common and unique portions in order to accommodate different user needs while conserving channel usage.

- b. Regarding claims 3 and 19, patent '161 describes the channel partitioning to be on a terrestrial broadcast (column 9, lines 15-25) that inherently includes a TV program information sub-channel. While '161 does not describe a user-specific data portion, it is described in patent '586, which reason to combine described above in part a.
  - c. Regarding claim 33, patent '161 describes the demodulator apparatus to be of a computer program product (column 2, lines 45-50).
3. Claims 2, 4, 6, 18, 20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 6,874,161 in view of US patent 5,548,586, further in view of US patent 5,386,239.
- a. Regarding claims 2 and 18, while patent '161 does not specify the step of channel partitioning in a frequency domain, or frequency multiplexing, such a feature is well known in the art (see patent '239, column 1, lines

38-45). It would have been obvious to one ordinarily skilled in the art to use frequency multiplexing to allow for multiple channel partitions in a single channel.

- b. Regarding claims 4 and 20, while patent '161 in view of patent '586 teaches partitioning of a channel into a common and user specific channel, it does not specify the partitioning of a 6 MHZ broadcast channel. However, patent '239 describes this feature (column 1, lines 38-45). It would have been obvious to one ordinarily skilled in the art to partition a 6 MHZ broadcast channel in order to utilize the standard television broadcast channel.
  - c. Claims 6 and 22 read on the limitations of claims 1 and 17, further, patent '239 describes the use of frequency multiplexing (column 1, lines 38-45).
4. Claims 5, 7, 21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 6,874,161 in view of US patent 5,548,586, further in view of US patent 5,959,660.
- a. Regarding claims 5 and 21, while patent '161 does not specify the partitioning of a 6 MHZ channel into a 2 MHz common portion and a 4 MHz portion, patent '660 shows this possible break down (column 7, lines 23-33). The specific partitioning is a matter of design choice, and It would have been obvious to one ordinarily skilled in the art to divide a 6 MHz channel into a smaller common portion and a larger user-specific portion

when the amount of user-specific information exceed the amount of common information.

- b. Regarding claims 7 and 23, patent '660 describes the use of 8-VSB digital modulation (column 2, lines 40-45), and it would have been obvious to one ordinarily skilled in the art to use this modulation in a demodulation system described in '161 as a vestigial side band modulation.
5. Claims 8 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 6,874,161 in view of US patent 5,548,586, further in view of US patent 6,961,432. The steps of transmitting information through up-converting, power-amplifying and transmitting is well known in the area. While '161 does not describe this explicitly, patent '432 does (column 9, lines 7-12). It would have been obvious to one ordinarily skilled in the art to use this sequence of transmitting process in order to prepare the information for a successful and reliable transmission.
6. Claims 9 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 6,874,161 in view of US patent 5,548,586, further in view of US patent 6,359,938. While patent '161 does not describe the use of COFDM, such a use is well known in the art (see '938, column 1, lines 30-32). It would have been obvious to one ordinarily skilled in the art to use COFDM in frequency-dependent channels to provide increased performance in transmission.
7. Claims 10 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 6,874,161 in view of US patent 5,548,586, US patent 6,359,938,

further in view of US 6,891,858. While patent '161 does not describe the use of a QPSK-based COFDM modulation for the unique information and the QAM-based COFDM modulation for the common information, patent '938 describes the use of COFDM (column 1, lines 30-32) and patent '858 describes the use of QPSK as a more robust modulation profile and QAM as a less robust modulation profile (column 11, lines 32-45). It would have been obvious to one ordinarily skilled in the art to use them for data and cable TV modulations, respectively, in order to accommodate for their varying degrees of robustness while not sacrificing speed in modulations.

8. Claims 11 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 6,874,161 in view of US patent 5,548,586 and US patent 6,961,432, further in view of US patent 6,359,938. Claims 11 and 27 read on the limitations of claims 8 and 24 above, further, patent '938 describe the use of COFDM (see 6).
9. Claims 12 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 6,874,161 in view of US patents 5,548,586, 6,961,432, 6,359,938, and further in view of US patent 6,483,553. While patent '161 does not describe the use of the transmitter in a single frequency network, patent '553 does (column 1, line 65 to column 2, line 5). It would have been obvious to one ordinarily skilled in the art to transmit information within a COFDM single frequency network in order to make a wide band transmission in a signal frequency.

10. Claims 13 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 6,874,161 in view of US patent 5,548,586, further in view of Y. Wu et al in "COFDM for Digital ATV Terrestrial Distribution Over 6MHz Channels" (hereafter "WU"). While patent '161 does not discuss the use of 8-VSB and COFDM, it discusses using different modulation techniques for different channels. However, WU teaches that the use of COFDM provides a more flexible design and better meets various requirements depending on the specific applications (page 30, section 3.1), but that it uses higher power (page 30, section 3.2). Therefore, It would have been obvious to one ordinarily skilled in the art to use 8-VSB, an industry standard for ATV broadcasting in the US, to modulate the common portion of the channel partition, and COFDM to modulate the unique portion of the channel partition in order to accommodate different purposes of the channel, increase reliability and decreasing power usage.

11. Claims 14 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 6,874,161 in view of US patent 5,548,586, US patent 6,359,938, and of Y. Wu et al in "COFDM for Digital ATV Terrestrial Distribution Over 6MHz Channels" as applied to claims 13 and 29 above, and further in view of US 6,891,858. Claims 14 and 30 read on the limitations of claims 10 and 26 above; refer to item 7.

12. Claims 15 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 6,874,161 in view of US patent 5,548,586 and Y. Wu et al in "COFDM for Digital ATV Terrestrial Distribution Over 6MHz Channels", further in

view of US patent 6,961,432. Claims 15 and 31 read on the limitations of claims 8, 13, 24 and 29 above; refer to items 5 and 10.

13. Claims 16 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 6,874,161 in view of US patent 5,548,586, Wu et al, and US patent 6,961,432 as applied to claims 15 and 31 above, further in view of US patent 5,790,615. While patent '161 in combination with the other references do not teach transmission in a COFDM multi-frequency network, patent '615 does (column 4, lines 48-50 and column 5, lines 37-45). It would have been obvious to one ordinarily skilled in the art to use a multiple frequency network to enable longer symbol durations, decrease inter-symbol interference and reduce narrow-band multi-path effects.


### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jia W. Lu whose telephone number is 571-272-6042. The examiner can normally be reached on Mon- Fri, 10:30AM-6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (571)272-3056. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jia Lu  
Examiner



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